CAS 71-43-2

Substance name Benzene

Toxicity

Benzene is considered a known human carcinogen by authoritative sources.[1,2,3] All routes of exposure are considered carcinogenic based on convincing occupational evidence and supporting evidence from animal studies.[4] Benzene is toxic to blood cells. Evidence in animals suggests that exposure to benzene *in utero* can alter fetal maturation of lymphocytes, erythrocytes, and granulocytes and that the damage to the hematopoietic system during development can last into adulthood.[5]

Exposure

Biomonitoring by the CDC shows that benzene exposure is widespread in the U.S. population.[6] Vehicle exhaust and cigarette smoke are common sources of exposure. Benzene is also used in the manufacture of plastics, synthetic rubber, dyestuffs, resins, raw materials for detergents, and plant protection agents.[3] Testing by the Danish EPA found quantifiable benzene in one out of four balloons tested and in two scented children's toys.[7] Benzene was found infrequently in a large study of common household products in the USA.[8]

References

1. WHO, International Agency for Research on Cancer. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Supplement No 7: Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42. 1987.
2. U.S.EPA, Integrated Risk Information System (IRIS). Benzene (last revised 2003). http://www.epa.gov/ncea/iris/subst/0276.htm
3. European Commission, Joint Research Centre, Institute for Health and Consumer Protection. European Union Risk Assessment Report: Benzene Final Risk Assessment. 2008. http://ecb.jrc.ec.europa.eu/DOCUMENTS/Existing-Chemicals/RISK_ASSESSMENT/REPORT/benzenereport063.pdf
4. U.S. EPA, National Center for Environmental Assessment. Carcinogenic Effects of Benzene: an update. EPA/600/p-97/1001F. April 1998.
5. California EPA, Office of Environmental Health Hazard Assessment (1997) Hazard Identification of the Developmental and Reproductive Toxic Effects of Benzene. www.oehha.ca.gov/prop65/pdf/benzene.pdf.
6. Centers for Disease Control and Prevention. Fourth National Report on Human Exposure to Environmental Chemicals, 2009.
7. Danish Ministry of the Environment, Environmental Protection Agency. Survey of Chemical Substances in Consumer Products Reports 89 and, 68. http://www.mst.dk/English/Chemicals/Consumer_Products/Surveys-on-chemicals-in-consumer-products.htm
8. Sack,TM et al. (1992) A survey of household products for volatile organic compounds. *Atmospheric Environment Vol. 26A (6):*1063-1070.